

# PSEUDO-NITZSCHIA AND CHAETOCEROS BLOOM IN THE COASTAL WATERS OF ISTRIAN PENNINSULA, NORTHERN ADRIATIC SEA

Jelena Godrijan<sup>1\*</sup>, Zrinka Burić<sup>2</sup>, Daniela Marić<sup>1</sup>, Sunčica Bosak<sup>2</sup>, Petra Peharec<sup>3</sup>, Tamara Đakovac<sup>1</sup>

<sup>1</sup>Ruder Bosković Institute, Center for marine research, G. Paliaga 5, Rovinj HR-52210, Croatia  
<sup>2</sup>University of Zagreb, Faculty of Science, Rooseveltov trg 6, Zagreb HR-10000, Croatia  
<sup>3</sup>University of Zagreb, Faculty of Science, Horvatovac 102a, Zagreb HR-10000, Croatia  
\*contact: jelena.godrijan@irb.hr

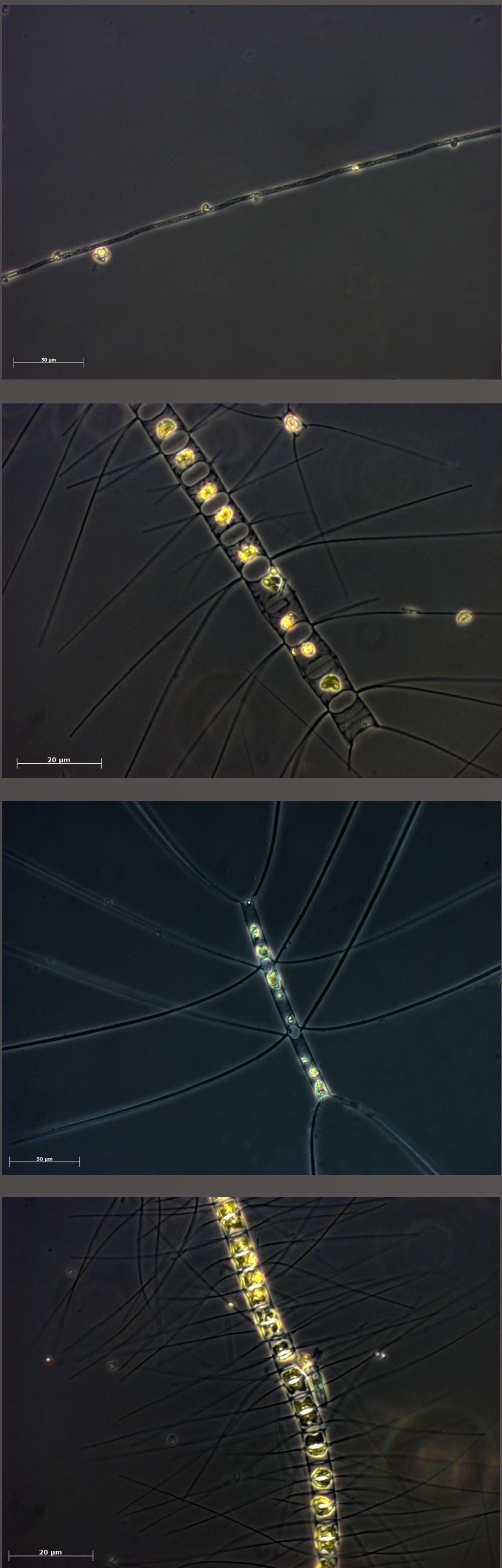


Fig. 1. LM micrographs of *Pseudo-nitzschia* spp.(A), *Chaetoceros brevis*(B), *Chaetoceros lorenzianus*(C), *Chaetoceros costatus*(D).

Phytoplankton abundance and composition, as well as physico-chemical properties were analyzed at nine stations in the NE Adriatic coastal waters along Istrian peninsula in November, 2007. During the cruise the basin was highly influenced by strong northern wind (bora) forcing. The bora event created a sharp hydrographic front (Fig. 4.) and the strong gradient of phytoplankton distribution. Stations greatly differed with regard to temperature, salinity, and nutrient distribution, showing the prevalence of colder, saltier and nutrient poorer water along the eastern coast (Fig. 2.). There was an evident dominance of *Pseudo-nitzschia* spp. and *Chaetoceros* spp species along the western stations. The cell counts (Uthermöl 1958. method) were obtained with the Zeiss Axiovert 200 phase-contrast inverted microscope (Fig. 1.), with total number of fifteen identified *Chaetoceros* species (Tab 1.). Further taxonomic study on station JPG 38 with the FEI Morgagni 268D transmission electron microscope revealed four *Pseudo-nitzschia* species: *P. calliantha*, *P. pungens*, *P. fraudulenta*, *P. cuspidata* (Fig. 3.).

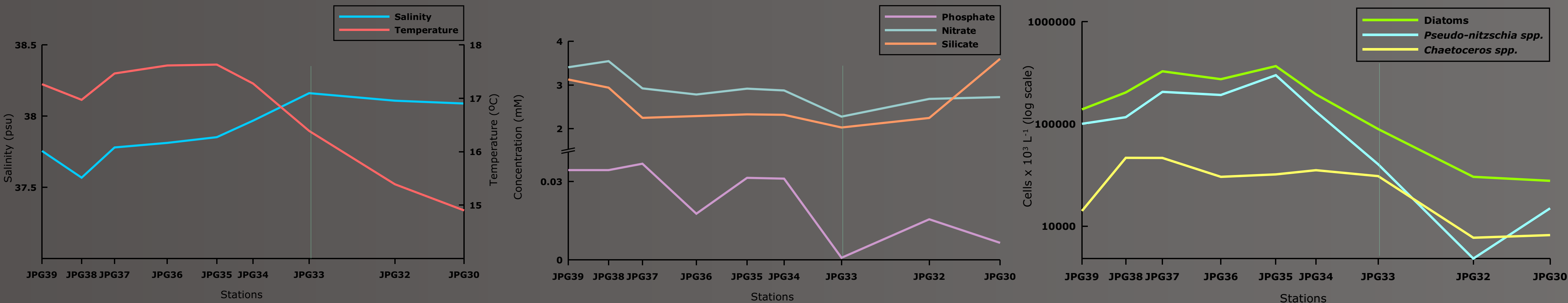


Fig. 2. Spatial distribution of temperature and salinity (A); phosphate, total inorganic nitrogen and silicate (B); Diatoms, Pseudonitzschia spp. and Chaetoceros spp. on the 29th of November 2007 (averaged over the whole water column), green line indicates the tip of Istrian peninsula.

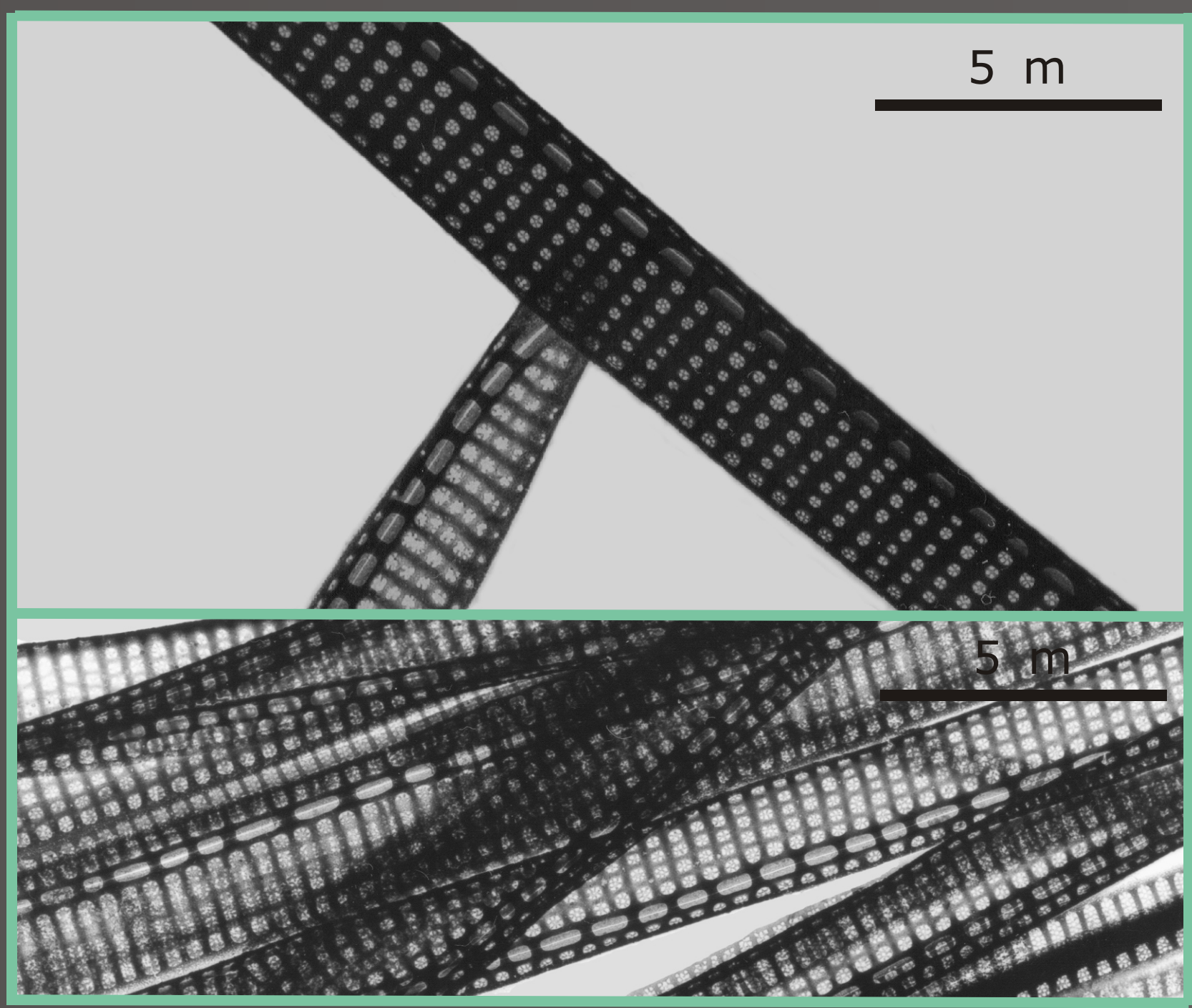


Fig. 3. TEM micrographs of *Pseudo-nitzschia* species, acid cleaned material.

Tab. 1. Listing *Pseudo-nitzschia* spp. and *Chaetoceros* species, total number of samples 27. Fr%-frequency of appearance, Max-maximum abundance, AVG-average abundance (cells L<sup>-1</sup>).

	Fr%	Max	AVG
<i>Pseudo-nitzschia</i> spp.	100	420266	122788
<i>Chaetoceros</i> sp.	92,59	25460	6175
<i>Chaetoceros decipiens</i> Cleve	88,89	15960	3502
<i>Chaetoceros affinis</i> Laud.	81,48	16340	2948
<i>Chaetoceros curvisetus</i> Cleve	74,07	11780	1843
<i>Chaetoceros atlanticus</i> Cleve	70,37	3400	878
<i>Chaetoceros peruvianus</i> Brightw.	70,37	2650	558
<i>Chaetoceros brevis</i> Schutt	55,56	33060	4781
<i>Chaetoceros vixvisibilis</i> Schiller	37,04	26600	2184
<i>Chaetoceros lorenzianus</i> Grun.	29,63	4550	308
<i>Chaetoceros compressus</i> Laud.	25,93	43320	3870
<i>Chaetoceros lauderi</i> Ralfs	25,93	6820	800
<i>Chaetoceros diversus</i> Cleve	18,52	2270	250
<i>Chaetoceros convolutus</i> Castr.	3,70	190	7
<i>Chaetoceros costatus</i> Pav.	3,70	2850	106
<i>Chaetoceros dadayi</i> Pav.	3,70	40	1
<i>Chaetoceros danicus</i> Cleve	3,70	1510	56

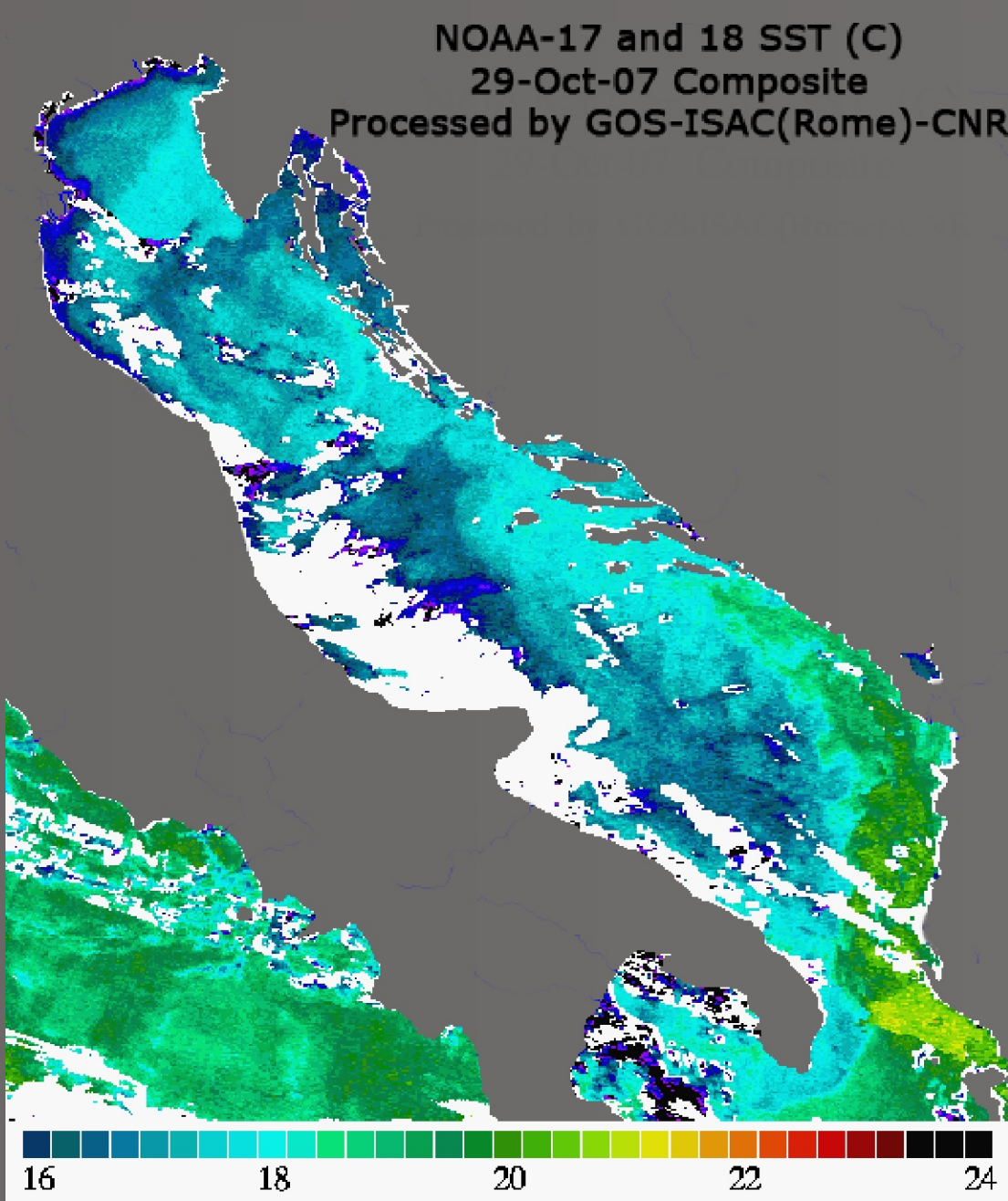
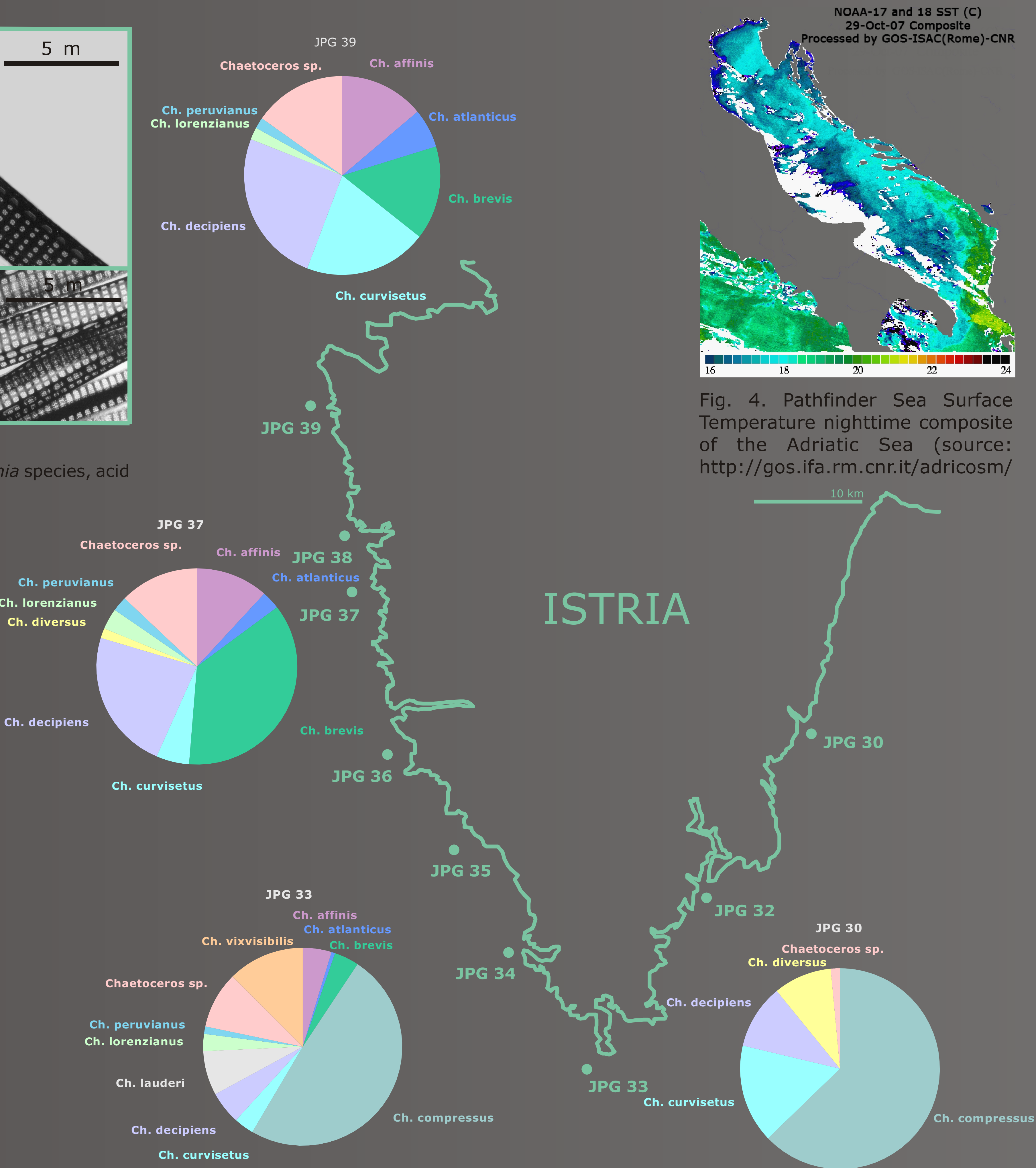


Fig. 4. Pathfinder Sea Surface Temperature nighttime composite of the Adriatic Sea (source: <http://gos.ifa.rm.cnr.it/adricosm/>)